

MARITIME HERITAGE MINNESOTA

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Andy Gibson Starboard Gunwale and Deck Excavation



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THE DOCUMENTATION, CONSERVATION, AND PRESERVATION OF
MINNESOTA'S FINITE MARITIME CULTURAL RESOURCES

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Introduction

Maritime Heritage Minnesota (MHM) has been conducting nautical and dry nautical investigations of the *Andy Gibson* wreck site since 2008. The amount of nautical archaeological information already accumulated about the site is significant but much more work remains to be done. MHM continued the examination of the intact starboard gunwale between 15-17 September and 30 September 2011. The presence of an intact gunwale is a one-of-a-kind *in situ* opportunity to examine the exact construction of a Headwaters Mississippi River steamer. The history and previous nautical archaeological investigations of the *Andy Gibson* steamer has been covered extensively in previous MHM reports. Therefore, only a brief synopsis of the vessel's construction and working life will be covered here.

Brief Operational History of *Andy Gibson*

Andy Gibson was built over the winter of 1883-1884 in Aitkin by Captain Fred W. Bonness, Lee West, and Edwin B. Lowell, who owned the steamer under E. B. Lowell, and Co., and she was fitted engines and boilers manufactured by D.M. Swain of Stillwater. She was launched on the Mississippi River on 22 April 1884. She was 130 feet long, 32 feet in the beam, and weighed 150 tons – the longest and widest Headwaters Mississippi River steamer constructed. She had a one-foot draft unloaded and two-foot draft when loaded with 100 tons of cargo. Her sternwheel was

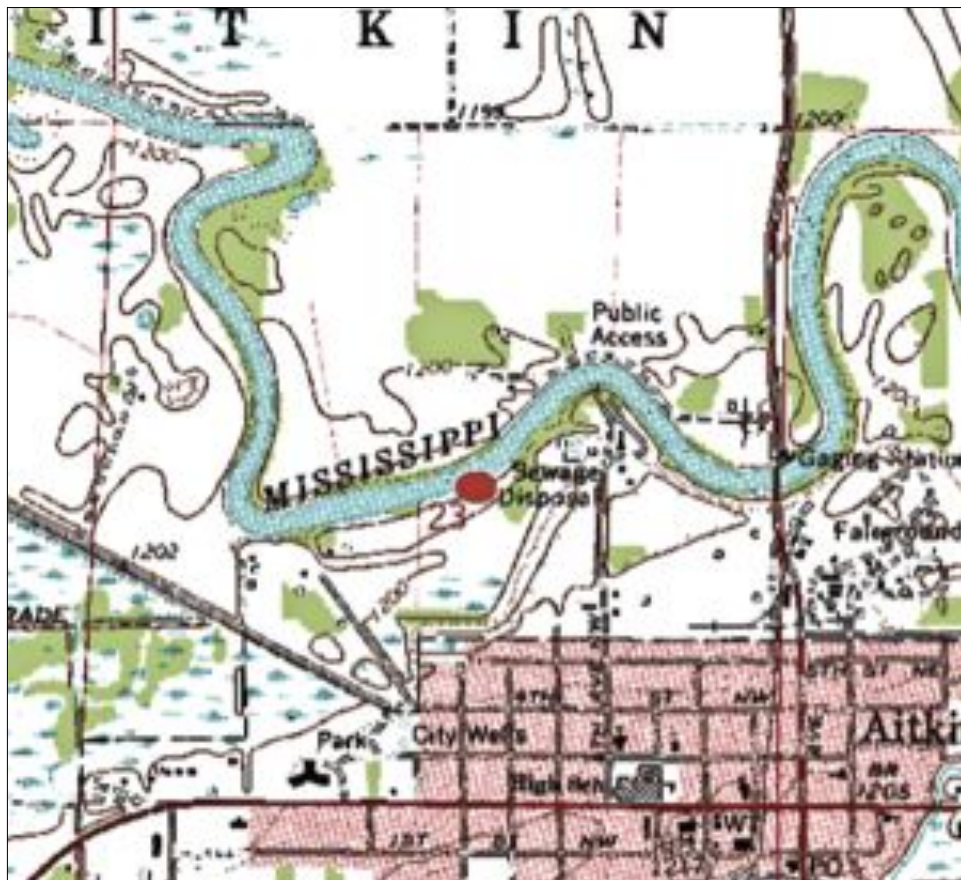


Andy Gibson moored on the Mississippi River with a wanigan tilted on shore behind her (tasca County Historical Society).

18 feet long with a 15-foot diameter. Her two engines had 12-inch diameter steam cylinders with a six-foot stroke, ran at 160 horsepower with two boilers, and could make 13 mph against the river's current. She had two cabins on her upper deck, one located forward and the other aft, accommodating 150 passengers. Her lower deck area would hold as many people as could fit into the space. Her pilothouse was located above it all, forward and attached to the upper deck's roof. Her first crew consisted of Captain Fred W. Bonness, Mate John Campbell, Clerk James Gibson, Pilot John Lyons, and Engineer A. Storer (*Aitkin Age* 1884a, 1884b, 1886; Hart 1952, 12).

The *Andy Gibson* Wreck Site

The *Andy Gibson* Wreck Site is located in the Mississippi River and riverbank just outside of Aitkin. The site consists of the wreck of the sternwheel steamer *Andy Gibson* that rests on top of a cradle that served as a dry dock. While the steamer is fragmented, the site has remained within the same area since the steamer was abandoned. A portion of the wreck is anchored in place because it is imbedded in the riverbank, although structural components have been washed away by river currents, ice, moving obstructions such as trees and logs, and looting.



Location of the *Andy Gibson* wreck site on a USGS map.

2010 *Andy Gibson* Starboard Gunwale Excavation

During the last two weeks of October 2010, MHM conducted an excavation of the riverbank where we hypothesized the starboard gunwale of the *Andy Gibson* wreck would be located if it had survived. This 'dry' nautical excavation was undertaken during relatively high water conditions. Three trenches were opened, two aft of amidships and one forward, and they extended below the river water level. MHM located the starboard side gunwale exactly where it was hypothesized to be – intact – in all three trenches. It is possible that it has survived along the entire length of the hull that is imbedded in the

riverbank. MHM documented a number of nautical architectural components during this excavation: deck beams, deck planks, futtocks (inner athwartships structural beams that are extensions of the floors), and a clamp (a longitudinal beam attached to the inner hull for strength and support for the deck beams). The gunwale is capped by a rounded molding and bordered by a finely cut rub rail (a wooden beam attached along the outer hull at deck level designed to take stress during docking operations). The portions of the gunwale exposed in 2010 were in excellent condition with the exception of the deck planks. The deck planks, that are thinner than the other components, have weakened and formed themselves over the deck beams and futtocks beneath them after decades of water saturation.

2011 Andy Gibson Starboard Gunwale and Deck Excavation

Trench 4

On 15 September 2011, MHM opened a new trench, Trench 4, 20 forward (upriver) from Trench 3. The reason for sinking the trench was to locate the turn of the bow and to determine the condition of the gunwale near the bow. Iron fasteners and one deck plank were encountered in the matrix and one outer hull plank was discovered in place, angled so as to suggest the angle of the turn of the bow. The trench was recorded, photographed, and back-filled.



Hull plank angled to suggest the turn of the bow in Trench 4.

Trench 2

Trench 2 was originally excavated between 18 and 24 October 2010 during high water conditions. Even though the entirety of the starboard gunwale is imbedded in the riverbank and several feet below the surface, it does become water soaked periodically depending on the river water level. Unexpected low water conditions allowed MHM to re-open the trench on 16 September 2011 in order to more fully investigate the inner hull structural components that could not be accessed and documented in 2010. The shifting of deck planks at the gunwale allowed the clearing of the area between the inner outer hull and the clamp and down toward the turn of the bilge. Also uncovered were 8 intact deck planks *in situ*, although the deck beams underneath them had collapsed. It is apparent that most of the wreck's starboard side is intact from the bottom hull planks to the gunwale and decking. The intact nature of the deck planking prevented MHM from clearing a large area between the clamp and outer hull, but there was enough space to determine the placement of the futtocks and cocked hat. The trench was photographed, drawn, and back-filled.



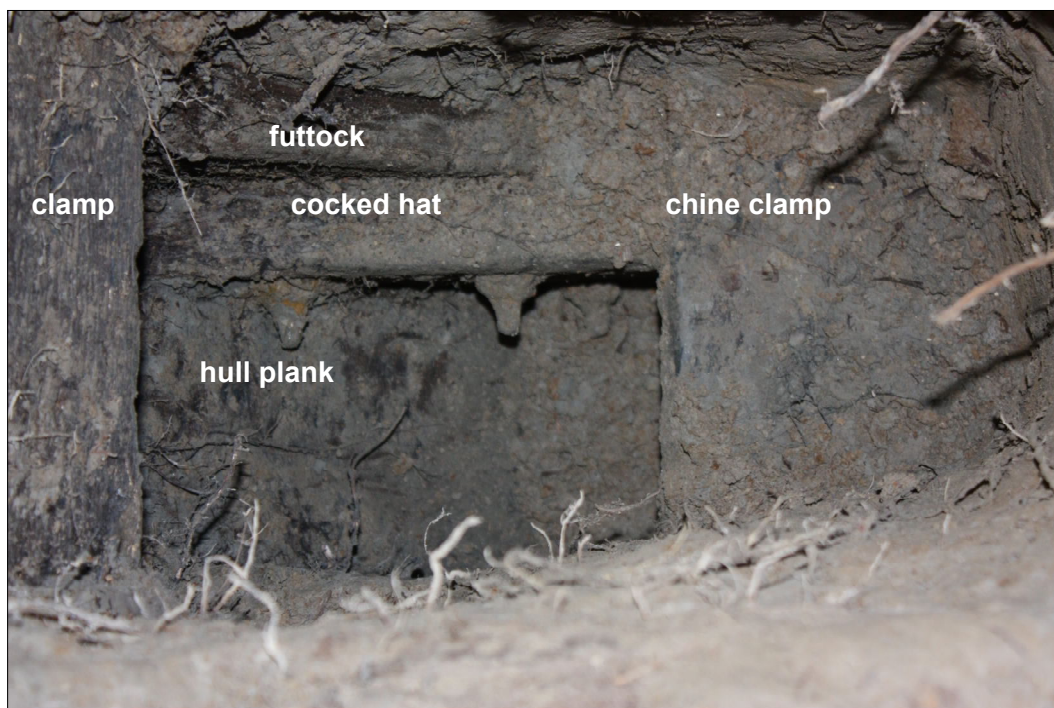
Trench 2. These 8 intact deck planks *in situ* are unique and relatively stable. MHM cleaned out the area between the inner outer hull and the deck planks because one deck plank was missing. Limited working space did not allow MHM to reach the turn of the bilge in this trench. The clamp, futtocks, and cocked hats were located. Note the two metal fasteners loose on the deck.

Trench 3.

Trench 3 was originally excavated between 24 and 26 October 2010 during high water. MHM re-opened the trench on 30 September 2011 in order to more fully investigate the inner hull structural components that could not be accessed and documented in 2010. A section of decking in Trench 3 did not survive and the area was large enough for MHM to reach the turn of the bilge. The area below the clamp in Trench 3 – that was damaged by the weight of over 100 years of soil pushing down on it – could be cleaned enough for MHM to document the presence of the futtocks, cocked hats, the angle of the turn of the bilge, the chine clamp, and the probable measurement of the wreck's depth of hold. The trench was photographed, drawn, and back-filled.



Trench 3. The deck planking in Trench 3 is damaged or this area represents where a deck structure once stood, which allowed the examination of the inner hull construction attributes.



Trench 3. The photograph above is a close-up of the section in the upper right corner of the previous photograph. To the left is the damaged clamp. The two bolts are holding a cocked hat to a futtock and the chine clamp is seen along with the inside of the outer hull. The turn of the bilge is under the chine clamp.



Andy Gibson from her stern during extreme low water conditions in September 2009. From this angle the structural components shown in the image include the outer hull planking, floors, and the bent cylinder timber supporting rods.

Conclusion

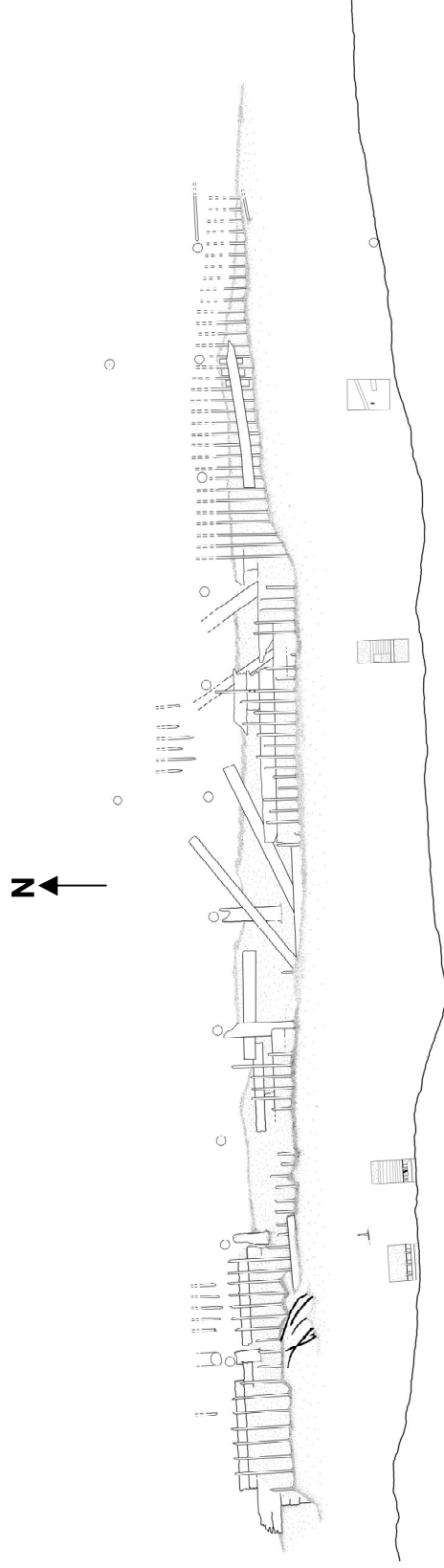
In terms of steamboat construction, the archaeological remains of *Andy Gibson* show that the wreck exhibits the structural components that are typically found in a river steamer. Her intact starboard gunwale *in situ* and the associated construction components that have survived – including an elegant rub rail with a finely carved rounded trim, clamp, futtocks, chine clamp, cocked hats, deck beams, and deck

planking, as well as uniform floors, strakes, stringers, cylinder timbers, cylinder timber supporting rods, cylinder timber braces, balanced rudders – indicate that although *Andy Gibson* was probably built without plans, her builders knew how to properly construct a shallow-draft river steamer.

The measurements of the internal structural components that make up the *Andy Gibson* wreck are consistent throughout the site:

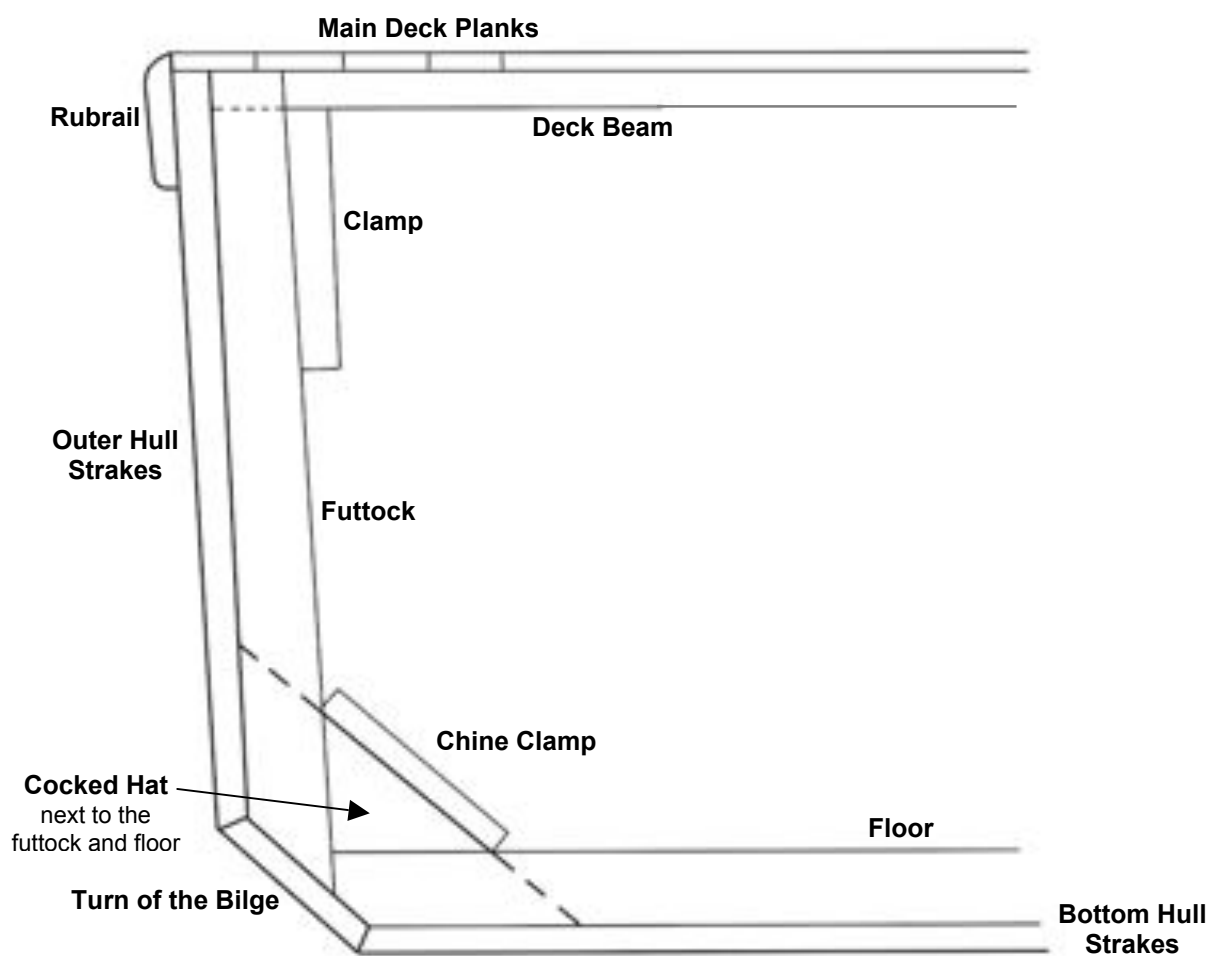
- chine clamp: .13 molded
- clamp: .2 inches sided and 1.15 feet molded
- cocked hat: .15 inches sided
- deck beam: 2.0 inches sided and 2.0 inches molded
- floor: 3.0 inches sided and 4.5 inches molded
- futtock: .25 inches sided

Andy Gibson's intact starboard gunwale is the only known example to have survived on any Mississippi River steamer wreck. The fact that her deck is substantially intact up to nearly nine deck planks is also a rare occurrence in nautical archaeology. These facts put the *Andy Gibson* in a class of her own among American wooden river steamboat wrecks. Beyond this, however, *Andy Gibson* is a physical representation of what 'common wisdom' dictates does not exist: a Headwaters Mississippi River steamboat. *Andy Gibson* was a steamer that exhibits geographically-specific construction characteristics that allowed her to successfully navigate the shallow and rapids-laden waters of the Mississippi River between Aitkin, Sandy Lake, and Grand Rapids for eight years, carrying passengers and cargo that formed the basis of Aitkin and Itasca County commerce in the late 19th Century.



The MHM site plan for the *Andy Gibson* wreck site incorporating data from 2008-2011.

Appendix 1: Amidships Hull Cross-Section



This cross-section shows the nearly vertical sides of the hull near the center of the *Andy Gibson*. The hull would flare outward toward the bow.

Appendix 2: Glossary

- **chine clamp:** a longitudinal timber attached to the cocked hats to provide longitudinal strength to a hull
- **clamp:** a longitudinal timber attached to futtocks to support the deck beams
- **cocked hat:** a triangular shaped timber that joins the floors and futtocks to create and support the joint
- **cylinder timber supporting rods:** metal rods that hold in the large cylinder timbers on starboard and port that supported the stern wheel
- **deck beam:** an athwartships beam attached to the gunwale to support the deck planks
- **deck plank:** a longitudinal plank attached to the deck beams; a series of deck planks creates the main deck of a vessel
- **floor:** an athwartships section of a frame attached to the hull's bottom
- **frame:** athwartships timbers comprised of sections – the floor and futtocks – that are attached to the outer hull planking to provide strength and rigidity
- **futtock:** a section of a frame attached to the hull's side
- **gunwale:** starboard top edge of the vessel's side extending out of the riverbank at the wreck's bow
- **molded:** the vertical side of a structural component of a wreck; the term is used when describing the measurements of the components
- **sided:** the horizontal side of a structural component of a wreck; the term is used when describing the measurements of the components

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